

**Section-by-Section Analysis of H.R. 5656,  
*The Energy Research, Development, Demonstration, and Commercial Application Act of 2006***

**Sec. 1. Short Title**

“Energy Research, Development, Demonstration, and Commercial Application Act of 2006”

**Sec. 2. Definitions**

Defines terms used in the text.

**Sec. 3. FutureGen**

Requires the Secretary of Energy to carry out a project to demonstrate the feasibility of the commercial application of advanced clean coal technology, including carbon capture and geological sequestration, for electricity generation.

Requires the Secretary to design the project to meet specific emissions goals and to demonstrate electricity production using advanced clean coal technology with carbon capture and geological sequestration at a cost not greater than 10 percent higher than current commercial integrated coal gasification combined cycle electric generating plants.

Authorizes appropriations to the Secretary to carry out this section.

**Sec. 4. Advanced Fuel Cycle Technologies for Nuclear Power**

Requires the Secretary to carry out a program of research, development, demonstration, and commercial application on advanced nuclear power technologies with the goal of minimizing the production of nuclear waste to the extent that the Yucca Mountain waste repository would be sufficient for storing all of the nuclear waste generated by U.S. commercial nuclear power reactors during this century.

Requires the Secretary to develop a comprehensive plan for advanced nuclear technology R&D and prohibits the Department of Energy (DOE) from moving forward on some large-scale nuclear technology demonstration projects until the plan is reviewed by the National Academy of Sciences (NAS) and the plan and the NAS review are delivered to Congress

Authorizes appropriations to the Secretary of such sums as may be necessary to carry out this section for fiscal years 2007 to 2009 from sums already authorized to be appropriated for nuclear fuel cycle technology in *The Energy Policy Act of 2005* (EPACT) (P.L. 109-58).

Authorizes additional appropriations to the Secretary of such sums as may be necessary to carry out this section for fiscal years 2010 to 2012 (since EPACT does not contain authorizations of appropriations for nuclear fuel cycle technology for these years).

**Sec. 5. Advanced Battery Technologies**

Requires the Secretary to carry out a program of research, development, demonstration, and commercial application for advanced battery technologies for use in motor vehicles, particularly for plug-in hybrid motor vehicles.

Authorizes appropriations to the Secretary to carry out this section.

#### **Sec. 6. Advanced Biofuel Technologies**

Requires the Secretary to carry out a program of research, development, demonstration, and commercial application for production of liquid fuels from biomass.

Authorizes appropriations to the Secretary to carry out this section from sums already authorized to be appropriated for bioenergy programs in EPACT.

#### **Sec. 7. Advanced Hydrogen Storage Technologies**

Requires the Secretary to carry out a program of research, development, demonstration, and commercial application for technologies to enable practical onboard storage of hydrogen for use as a fuel for light-duty motor vehicles.

Authorizes appropriations to the Secretary to carry out this section.

#### **Sec. 8. Advanced Solar Photovoltaic Technologies**

Requires the Secretary to carry out a program of research, development, demonstration, and commercial application for advanced solar photovoltaic technologies.

Authorizes appropriations to the Secretary to carry out this section.

#### **Sec. 9. Advanced Wind Energy Technologies**

Requires the Secretary to carry out a program of research, development, demonstration, and commercial application for advanced wind energy technologies.

Authorizes appropriations to the Secretary to carry out this section.

#### **Sec. 10. Plug-In Hybrid Electric Vehicle Technology Program**

Short Title: this section may be cited as the “Plug-In Hybrid Electric Vehicle Act of 2006”

Defines terms used in the section.

Requires the Secretary of Energy to carry out a program of research, development, demonstration, and commercial application on technologies needed for the development of plug-in hybrid electric vehicles.

Establishes a competitive grant pilot program to provide up to 25 grants annually for demonstration of plug-in hybrid electric vehicles to State governments, local governments, and/or metropolitan transportation authorities, or combinations thereof to carry out a project or projects for demonstration of plug-in hybrid electric vehicles.

Authorizes appropriations to the Secretary to carry out this section.

### **Sec. 11. Photovoltaic Demonstration Program**

Short Title: this section may be cited as the “Solar Utilization Now Demonstration Act of 2006” or the “SUN Act of 2006”.

Requires the Secretary to establish a grant program to States for the demonstration of advanced photovoltaic solar energy technology. All states that meet the requirements of the program are eligible to receive funding. States are required to award funds in a competitive allocation to eligible recipients and to require a contribution of at least 60 percent per award from non-Federal sources, with at least ten percent provided by States. No award may be more than \$1 million, and unexpended funds will be returned to the Treasury after 3 years. The Secretary is required to report to Congress on the costs and results of this program after 5 years.

Authorizes appropriations to the Secretary to carry out this section.

### **Sec. 12. Energy Efficient Building Grant Program**

Establishes an energy efficient building pilot program to award grants to business and organizations for new construction of energy efficient buildings, or major renovations of buildings that will result in energy efficient buildings, and to demonstrate innovative energy efficiency technologies. Grants may be for up to 50 percent of design and energy modeling costs, not to exceed \$50,000 per building. Fifty percent of the grant is available to the recipient upon selection through a competitive process, and the remaining 50 percent is available only after independent certification that operational buildings are energy efficient as defined in the bill. Requires a report to Congress three years after first grant is awarded.

Authorizes appropriations to the Secretary to carry out this section.

### **Sec. 13. Energy Extension**

Authorizes the Secretary of Energy to carry out a program to award competitive, merit-based grants to cooperative extension services or offices, States, local governments, institutions of higher education and non-profit institutions with expertise in energy research or extension to conduct activities to transfer knowledge and information about advanced energy technologies that increase efficiency of energy use, especially those developed at the National Laboratories and by the Department, to individuals, businesses, nonprofit entities and public entities, including local governments and school districts. Requires federal cost-sharing of 50 percent and allows for extension of grants beyond initial five-year period, but requires periodic evaluations of funded activities under procedures established by the Secretary.

Authorizes appropriations to the Secretary to carry out this section.

#### **Sec. 14 Green Energy Education**

Authorizes the Department of Energy's (DOE) Office of Science and its applied energy technology programs to contribute funds to National Science Foundation's (NSF) Integrative Graduate Education and Research Traineeship (IGERT) program in support of projects related to the science and energy missions of the department.

Authorize DOE high performance building technology programs to contribute to NSF's ongoing curriculum development activities for the purpose of improving undergraduate and graduate interdisciplinary engineering and architecture education related to the design and construction of high performance buildings. Gives priority to applications from schools, departments or programs of engineering that are partnered with schools, departments or programs of design, architecture and city, regional, or urban planning.

#### **Sec. 15. ARPA-E Study**

Requires the Secretary to enter into an arrangement with the National Academy of Sciences to conduct a detailed study of, and make further recommendations on, the October 2005 National Academy of Sciences recommendation to establish an Advanced Research Projects Agency-Energy (ARPA-E).

Requires the Secretary, not later than 12 months after the date of enactment of this Act, to transmit a report to Congress containing the National Academy of Sciences study and the Secretary's response to the findings, conclusions, and recommendations of that study.